REMARKS

Rejections under 35 U.S.C. §112

Claims 1-26 are rejected under 35 U.S.C. §112, second paragraph, as indefinite. The Examiner states that claim 1 remains unclear, as do several of the dependent claims, and he requires the claims to be clarified to either positively recite the energy source in claim 1, or to amend claim 1 and the dependent claims so as not to positively recite limitations of the energy source. Office action mailed 3/30/99, pages 2-3.

Rejections under 35 U.S.C. §103

Claims 1-12 and 15-44 stand rejected under 35 U.S.C. § 103(a) as obvious over LeVeen, et al. in view of Edwards, et al. The Examiner states that the only feature not expressly taught by LeVeen et all is the energy delivery surface size and the use of an impedance monitoring means; and that it appears one of ordinary skill in the art would obviously be capable of creating the proper energy surface area to prevent impeding out an antenna without undue experimentation. Further, LeVeen et al. discloses the use of a trocar to introduce the multiple antenna ablation device, but fails to disclose the specific size of the trocar. The Examiner maintains that use of any well known trocar size would have been an obvious design consideration dependent upon the particular procedure as well as the particular antenna device being used. Edwards, et al. teach that it is generally well known to monitor the impedance of a multiple electrode RF ablation device. The Examiner goes on to state that to have provided the LeVeen et al. device with an impedance monitoring and control means to control the delivery of energy to the electrodes to avoid impeding out the electrodes would have been an obvious modification for one of ordinary skill in the art in view of the teaching of Edwards, et al.

Allowable Subject Matter

Applicants thank the Examiner for his indication that claims 13 and 14 would be allowable if rewritten to overcome the rejections under 35 U.S.C. §112, second paragraph.

These grounds of rejection are respectively traversed.

In one embodiment of the present invention, as set forth in claim 1, an ablation treatment apparatus includes a trocar with a tissue piercing distal end and a hollow lumen extending along a longitudinal axis of the trocar. A multiple antenna ablation device is configured to be coupled to an electromagnetic energy source. The multiple antenna ablation device includes three or more antennas positionable in the lumen and deployable from the trocar lumen in a lateral direction relative to the longitudinal axis at a selected tissue mass. Each deployed antenna has an electromagnetic energy delivery surface size sufficient to create a volumetric ablation between the deployed antennas without impeding out when 5 to 200 watts of electromagnetic energy is delivered. An impedance monitor device is coupled to the multiple antenna ablation device. A rigid antenna advancement member is coupled to the three or more antennas to simultaneously advance the three or more antennas from the trocar. At least one cable is coupled to the multiple antenna ablation device.

LeVeen et al., discloses an RF ablation apparatus with a plurality of deployable RF electrodes. There is no teaching or suggestion in LeVeen et al., that the energy delivery surface sizes of the deployed RF electrodes is selected so that the deployed electrodes do not impede out when 5-200 watts of electromagnetic energy is delivered. LeVeen et al,. fails to provide, or suggest, the inclusion of an impedance monitor device. LeVeen et al., also fails to disclose or suggest a rigid antenna advancement member. LeVeen et al., teaches a cable to advance the electrodes. A cable is not rigid, see the drawings of LeVeen et al. The LeVeen et al., drawings clearly show that the cable is non-rigid.

LeVeen et al., in combination with Edwards et al., also fails to teach or suggest the present invention. Edwards et al., does have an antenna advancement member that simultaneously advances the antenna from the introducer. Instead, Edwards et al., has an advancement member for each deployed electrode. Edwards, et al., thus teaches away from one aspect of the present invention.

CONCLUSION

It is submitted that the present application is now in form for allowance, and such action is respectfully requested.

The Commissioner is authorized to charge any additional fees which may be required, including petition fees and extension of time fees, to Deposit Account No. 23-2415 (Docket No. 13724-787). A duplicate copy of this paper is enclosed.

Respectfully submitted,
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